FIG. 1A

```
GGATTGAACA AGGACGCATT TCCCCAGTAC ATCCACAAC ATG CTG TCC ACA TCT      54
                                            Met Leu Ser Thr Ser
                                              1               5

CGT TCT CGG TTT ATC AGA AAT ACC AAC GAG AGC GGT GAA GAA GTC ACC    102
Arg Ser Arg Phe Ile Arg Asn Thr Asn Glu Ser Gly Glu Glu Val Thr
                  10                                  15          20

ACC TTT TTT GAT TAT GAT TAC GGT GCT CCC TGT CAT AAA TTT GAC GTG    150
Thr Phe Phe Asp Tyr Asp Tyr Gly Ala Pro Cys His Lys Phe Asp Val
             25                  30                  35

AAG CAA ATT GGG GCC CAA CTC CTG CCT CCG CTC TAC TCG CTG GTG TTC    198
Lys Gln Ile Gly Ala Gln Leu Leu Pro Pro Leu Tyr Ser Leu Val Phe
         40                  45                  50

ATC TTT GGT TTT GTG GGC AAC ATG CTG GTC GTC CTC ATC TTA ATA AAC    246
Ile Phe Gly Phe Val Gly Asn Met Leu Val Val Leu Ile Leu Ile Asn
     55                  60                  65

TGC AAA AAG CTG AAG TGC TTG ACT GAC ATT TAC CTG CTC AAC CTG GCC    294
Cys Lys Lys Leu Lys Cys Leu Thr Asp Ile Tyr Leu Leu Asn Leu Ala
 70                  75                  80                  85

ATC TCT GAT CTG CTT TTT CTT ATT ACT CTC CCA TTG TGG GCT CAC TCT    342
Ile Ser Asp Leu Leu Phe Leu Ile Thr Leu Pro Leu Trp Ala His Ser
                 90                  95                 100

GCT GCA AAT GAG TGG GTC TTT GGG AAT GCA ATG TGC AAA TTA TTC ACA    390
Ala Ala Asn Glu Trp Val Phe Gly Asn Ala Met Cys Lys Leu Phe Thr
            105                 110                 115

GGG CTG TAT CAC ATC GGT TAT TTT GGC GGA ATC TTC TTC ATC ATC CTC    438
Gly Leu Tyr His Ile Gly Tyr Phe Gly Gly Ile Phe Phe Ile Ile Leu
        120                 125                 130

CTG ACA ATC GAT AGA TAC CTG GCT ATT GTC CAT GCT GTG TTT GCT TTA    486
Leu Thr Ile Asp Arg Tyr Leu Ala Ile Val His Ala Val Phe Ala Leu
    135                 140                 145
```

FIG. 1B

```
AAA GCC AGG ACG GTC ACC TTT GGG GTG GTG ACA AGT GTG ATC ACC TGG      534
Lys Ala Arg Thr Val Thr Phe Gly Val Val Thr Ser Val Ile Thr Trp
150                 155                 160                 165

TTG GTG GCT GTG TTT GCT TCT GTC CCA GGA ATC ATC TTT ACT AAA TGC      582
Leu Val Ala Val Phe Ala Ser Val Pro Gly Ile Ile Phe Thr Lys Cys
                170                 175                 180

CAG AAA GAA GAT TCT GTT TAT GTC TGT GGC CCT TAT TTT CCA CGA GGA      630
Gln Lys Glu Asp Ser Val Tyr Val Cys Gly Pro Tyr Phe Pro Arg Gly
            185                 190                 195

TGG AAT AAT TTC CAC ACA ATA ATG AGG AAC ATT TTG GGG CTG GTC CTG      678
Trp Asn Asn Phe His Thr Ile Met Arg Asn Ile Leu Gly Leu Val Leu
        200                 205                 210

CCG CTG CTC ATC ATG GTC ATC TGC TAC TCG GGA ATC CTG AAA ACC CTG      726
Pro Leu Leu Ile Met Val Ile Cys Tyr Ser Gly Ile Leu Lys Thr Leu
    215                 220                 225

CTT CGG TGT CGA AAC GAG AAG AAG AGG CAT AGG GCA GTG AGA GTC ATC      774
Leu Arg Cys Arg Asn Glu Lys Lys Arg His Arg Ala Val Arg Val Ile
230                 235                 240                 245

TTC ACC ATC ATG ATT GTT TAC TTT CTC TTC TGG ACT CCC TAT AAC ATT      822
Phe Thr Ile Met Ile Val Tyr Phe Leu Phe Trp Thr Pro Tyr Asn Ile
                250                 255                 260

GTC ATT CTC CTG AAC ACC TTC CAG GAA TTC TTC GGC CTG AGT AAC TGT      870
Val Ile Leu Leu Asn Thr Phe Gln Glu Phe Phe Gly Leu Ser Asn Cys
            265                 270                 275

GAA AGC ACC AGT CAA CTG GAC CAA GCC ACG CAG GTG ACA GAG ACT CTT      918
Glu Ser Thr Ser Gln Leu Asp Gln Ala Thr Gln Val Thr Glu Thr Leu
        280                 285                 290

GGG ATG ACT CAC TGC TGC ATC AAT CCC ATC ATC TAT GCC TTC GTT GGG      966
Gly Met Thr His Cys Cys Ile Asn Pro Ile Ile Tyr Ala Phe Val Gly
    295                 300                 305
```

FIG. 1C

```
GAG AAG TTC AGA AGC CTT TTT CAC ATA GCT CTT GGC TGT AGG ATT GCC        1014
Glu Lys Phe Arg Ser Leu Phe His Ile Ala Leu Gly Cys Arg Ile Ala
310                 315                 320                 325

CCA CTC CAA AAA CCA GTG TGT GGA GGT CCA GGA GTG AGA CCA GGA AAG        1062
Pro Leu Gln Lys Pro Val Cys Gly Gly Pro Gly Val Arg Pro Gly Lys
                330                 335                 340

AAT GTG AAA GTG ACT ACA CAA GGA CTC CTC GAT GGT CGT GGA AAA GGA        1110
Asn Val Lys Val Thr Thr Gln Gly Leu Leu Asp Gly Arg Gly Lys Gly
            345                 350                 355

AAG TCA ATT GGC AGA GCC CCT GAA GCC AGT CTT CAG GAC AAA GAA GGA        1158
Lys Ser Ile Gly Arg Ala Pro Glu Ala Ser Leu Gln Asp Lys Glu Gly
        360                 365                 370

GCC TAGAGACAGA AATGACAGAT CTCTGCTTTG GAAATCACAC GTCTGGCTTC             1121
Ala

ACAGATGTGT GATTCACAGT GTGAATCTTG GTGTCTACGT TACCAGGCAG GAAGGCTGAG      1271

AGGAGAGAGA CTCCAGCTGG GTTGGAAAAC AGTATTTTCC AAACTACCTT CCAGTTCCTC      1331

ATTTTTGAAT ACAGGCATAG AGTTCAGACT TTTTTTAAAT AGTAAAAATA AAATTAAAGC      1391

TGAAAACTGC AACTTGTAAA TGTGGTAAAG AGTTAGTTTG AGTTGCTATC ATGTCAAACG      1451

TGAAAATGCT GTATTAGTCA CAGAGATAAT TCTAGCTTTG AGCTTAAGAA TTTTGAGCAG      1511

GTGGTATGTT TGGGAGACTG CTGAGTCAAC CCAATAGTTG TTGATTGGCA GGAGTTGGAA      1571

GTGTGTGATC TGTGGGCACA TTAGCCTATG TGCATGCAGC ATCTAAGTAA TGATGTCGTT      1631

TGAATCACAG TATACGCTCC ATCGCTGTCA TCTCAGCTGG ATCTCCATTC TCTCAGGCTT      1691

GCTGCCAAAA GCCTTTTGTG TTTTGTTTTG TATCATTATG AAGTCATGCG TTTAATCACA      1751

TTCGAGTGTT TCAGTGCTTC GCAGATGTCC TTGATGCTCA TATTGTTCCC TAATTTGCCA      1811

GTGGGAACTC CTAAATCAAA TTGGCTTCTA ATCAAAGCTT TTAAACCCTA TTGGTAAAGA      1871
```

FIG. 1D

ATGGAAGGTG GAGAAGCTCC CTGAAGTAAG CAAAGACTTT CCTCTTAGTC GAGCCAAGTT 1931

AAGAATGTTC TTATGTTGCC CAGTGTGTTT CTGATCTGAT GCAAGCAAGA AACACTGGGC 1991

TTCTAGAACC AGGCAACTTG GGAACTAGAC TCCCAAGCTG GACTATGGCT CTACTTTCAG 2051

GCCACATGGC TAAAGAAGGT TTCAGAAAGA AGTGGGGACA GAGCAGAACT TTCACCTTCA 2111

TATATTTGTA TGATCCTAAT GAATGCATAA AATGTTAAGT TGATGGTGAT GAAATGTAAA 2171

TACTGTTTTT AACAACTATG ATTTGGAAAA TAAATCAATG CTATAACTAT GTTGATAAAA 2231

G 2232

FIG. 2A

```
CAGGACTGCC TGAGACAAGC CACAAGCTGA ACAGAGAAAG TGGATTGAAC AAGGACGCAT    60

TTCCCCAGTA CATCCACAAC ATG CTG TCC ACA TCT CGT TCT CGG TTT ATC        110
                      Met Leu Ser Thr Ser Arg Ser Arg Phe Ile
                        1               5                  10

AGA AAT ACC AAC GAG AGC GGT GAA GAA GTC ACC ACC TTT TTT GAT TAT     158
Arg Asn Thr Asn Glu Ser Gly Glu Glu Val Thr Thr Phe Phe Asp Tyr

                15                  20                  25

GAT TAC GGT GCT CCC TGT CAT AAA TTT GAC GTG AAG CAA ATT GGG GCC     206
Asp Tyr Gly Ala Pro Cys His Lys Phe Asp Val Lys Gln Ile Gly Ala
            30                  35                  40

CAA CTC CTG CCT CCG CTC TAC TCG CTG GTG TTC ATC TTT GGT TTT GTG     254
Gln Leu Leu Pro Pro Leu Tyr Ser Leu Val Phe Ile Phe Gly Phe Val
        45                  50                  55

GGC AAC ATG CTG GTC GTC CTC ATC TTA ATA AAC TGC AAA AAG CTG AAG     302
Gly Asn Met Leu Val Val Leu Ile Leu Ile Asn Cys Lys Lys Leu Lys
    60                  65                  70

TGC TTG ACT GAC ATT TAC CTG CTC AAC CTG GCC ATC TCT GAT CTG CTT     350
Cys Leu Thr Asp Ile Tyr Leu Leu Asn Leu Ala Ile Ser Asp Leu Leu
75                  80                  85                  90

TTT CTT ATT ACT CTC CCA TTG TGG GCT CAC TCT GCT GCA AAT GAG TGG     398
Phe Leu Ile Thr Leu Pro Leu Trp Ala His Ser Ala Ala Asn Glu Trp
                95                  100                 105

GTC TTT GGG AAT GCA ATG TGC AAA TTA TTC ACA GGG CTG TAT CAC ATC     446
Val Phe Gly Asn Ala Met Cys Lys Leu Phe Thr Gly Leu Tyr His Ile
            110                 115                 120

GGT TAT TTT GGC GGA ATC TTC TTC ATC ATC CTC CTG ACA ATC GAT AGA     494
Gly Tyr Phe Gly Gly Ile Phe Phe Ile Ile Leu Leu Thr Ile Asp Arg
        125                 130                 135

TAC CTG GCT ATT GTC CAT GCT GTG TTT GCT TTA AAA GCC AGG ACG GTC     542
Tyr Leu Ala Ile Val His Ala Val Phe Ala Leu Lys Ala Arg Thr Val
    140                 145                 150
```

FIG. 2B

```
ACC TTT GGG GTG GTG ACA AGT GTG ATC ACC TGG TTG GTG GCT GTG TTT   590
Thr Phe Gly Val Val Thr Ser Val Ile Thr Trp Leu Val Ala Val Phe
155                 160                 165                 170

GCT TCT GTC CCA GGA ATC ATC TTT ACT AAA TGC CAG AAA GAA GAT TCT   638
Ala Ser Val Pro Gly Ile Ile Phe Thr Lys Cys Gln Lys Glu Asp Ser
                175                 180                 185

GTT TAT GTC TGT GGC CCT TAT TTT CCA CGA GGA TGG AAT AAT TTC CAC   686
Val Tyr Val Cys Gly Pro Tyr Phe Pro Arg Gly Trp Asn Asn Phe His
            190                 195                 200

ACA ATA ATG AGG AAC ATT TTG GGG CTG GTC CTG CCG CTG CTC ATC ATG   734
Thr Ile Met Arg Asn Ile Leu Gly Leu Val Leu Pro Leu Leu Ile Met
        205                 210                 215

GTC ATC TGC TAC TCG GGA ATC CTG AAA ACC CTG CTT CGG TGT CGA AAC   782
Val Ile Cys Tyr Ser Gly Ile Leu Lys Thr Leu Leu Arg Cys Arg Asn
    220                 225                 230

GAG AAG AAG AGG CAT AGG GCA GTG AGA GTC ATC TTC ACC ATC ATG ATT   830
Glu Lys Lys Arg His Arg Ala Val Arg Val Ile Phe Thr Ile Met Ile
235                 240                 245                 250

GTT TAC TTT CTC TTC TGG ACT CCC TAT AAC ATT GTC ATT CTC CTG AAC   878
Val Tyr Phe Leu Phe Trp Thr Pro Tyr Asn Ile Val Ile Leu Leu Asn
                255                 260                 265

ACC TTC CAG GAA TTC TTC GGC CTG AGT AAC TGT GAA AGC ACC AGT CAA   926
Thr Phe Gln Glu Phe Phe Gly Leu Ser Asn Cys Glu Ser Thr Ser Gln
            270                 275                 280

CTG GAC CAA GCC ACG CAG GTG ACA GAG ACT CTT GGG ATG ACT CAC TGC   974
Leu Asp Gln Ala Thr Gln Val Thr Glu Thr Leu Gly Met Thr His Cys
        285                 290                 295

TGC ATC AAT CCC ATC ATC TAT GCC TTC GTT GGG GAG AAG TTC AGA AGG  1022
Cys Ile Asn Pro Ile Ile Tyr Ala Phe Val Gly Glu Lys Phe Arg Arg
    300                 305                 310
```

FIG. 2C

```
TAT CTC TCG GTG TTC TTC CGA AAG CAC ATC ACC AAG CGC TTC TGC AAA      1070
Tyr Leu Ser Val Phe Phe Arg Lys His Ile Thr Lys Arg Phe Cys Lys
315                 320                 325                 330

CAA TGT CCA GTT TTC TAC AGG GAG ACA GTG GAT GGA GTG ACT TCA ACA      1118
Gln Cys Pro Val Phe Tyr Arg Glu Thr Val Asp Gly Val Thr Ser Thr
                335                 340                 345

AAC ACG CCT TCC ACT GGG GAG CAG GAA GTC TCG GCT GGT TTA              1160
Asn Thr Pro Ser Thr Gly Glu Gln Glu Val Ser Ala Gly Leu
            350                 355                 360

TAAAACGAGG AGCAGTTTGA TTGTTGTTTA TAAAGGGAGA TAACAATCTG TATATAACAA   1220

CAAACTTCAA GGGTTTGTTG AACAATAGAA ACCTGTAAAG CAGGTGCCCA GGAACCTCAG   1280

GGCTGTGTGT ACTAATACAG ACTATGTCAC CCAATGCATA TCCAACATGT GCTCAGGGAA   1340

TAATCCAGAA AAACTGTGGG TAGAGACTTT GACTCTCCAG AAAGCTCATC TCAGCTCCTG   1400

AAAAATGCCT CATTACCTTG TGCTAATCCT CTTTTTCTAG TCTTCATAAT TTCTTCACTC   1460

AATCTCTGAT TCTGTCAATG TCTTGAAATC AAGGGCCAGC TGGAGGTGAA GAAGAGAATG   1520

TGACAGGCAC AGATGAATGG GAGTGAGGGA TAGTGGGGTC AGGGCTGAGA GGAGAAGGAG   1580

GGAGACATGA GCATGGCTGA GCCTGGACAA AGACAAAGGT GAGCAAAGGG CTCACGCATT   1640

CAGCCAGGAG ATGATACTGG TCCTTAGCCC CATCTGCCAC GTGTATTTAA CCTTGAAGGG   1700

TTCACCAGGT CAGGGAGAGT TTGGGAACTG CAATAACCTG GGAGTTTTGG TGGAGTCCGA   1760

TGATTCTCTT TTGCATAAGT GCATGACATA TTTTTGCTTT ATTACAGTTT ATCTATGGCA   1820

CCCATGCACC TTACATTTGA AATCTATGAA ATATCATGCT CCATTGTTCA GATGCTTCTT   1880

AGGCCACATC CCCCTGTCTA AAAATTCAGA AAATTTTTGT TTATAAAAGA TGCATTATCT   1940

ATGATATGCT AATATATGTA TATGCAATAT AAAATTTAG                          1979
```

FIG. 3(A)

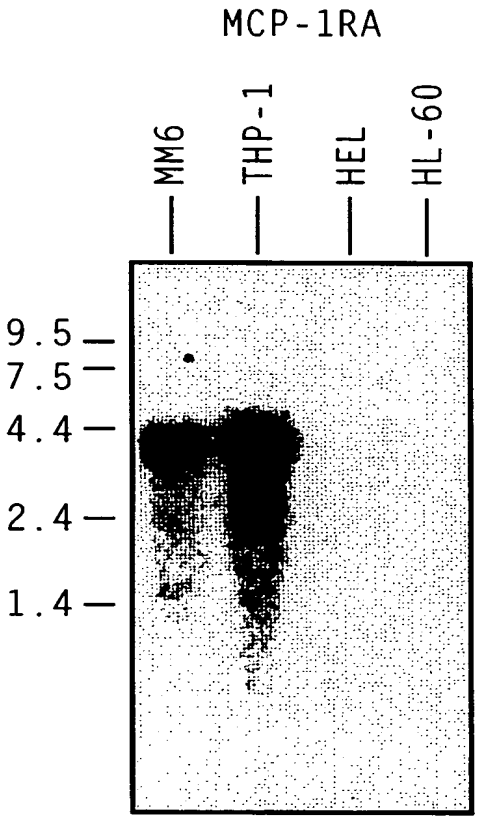

MCP-1RA
MM6
THP-1
HEL
HL-60
9.5
7.5
4.4
2.4
1.4

FIG. 3(B)

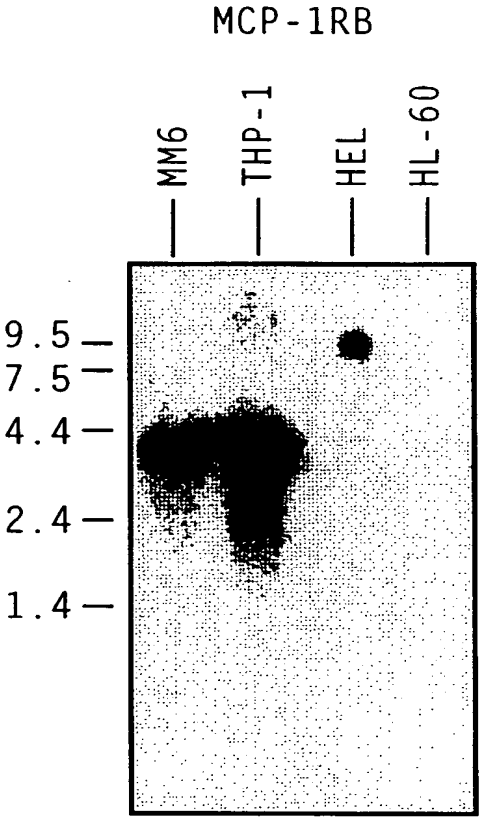

MCP-1RB
MM6
THP-1
HEL
HL-60
9.5
7.5
4.4
2.4
1.4

FIG.4(A)

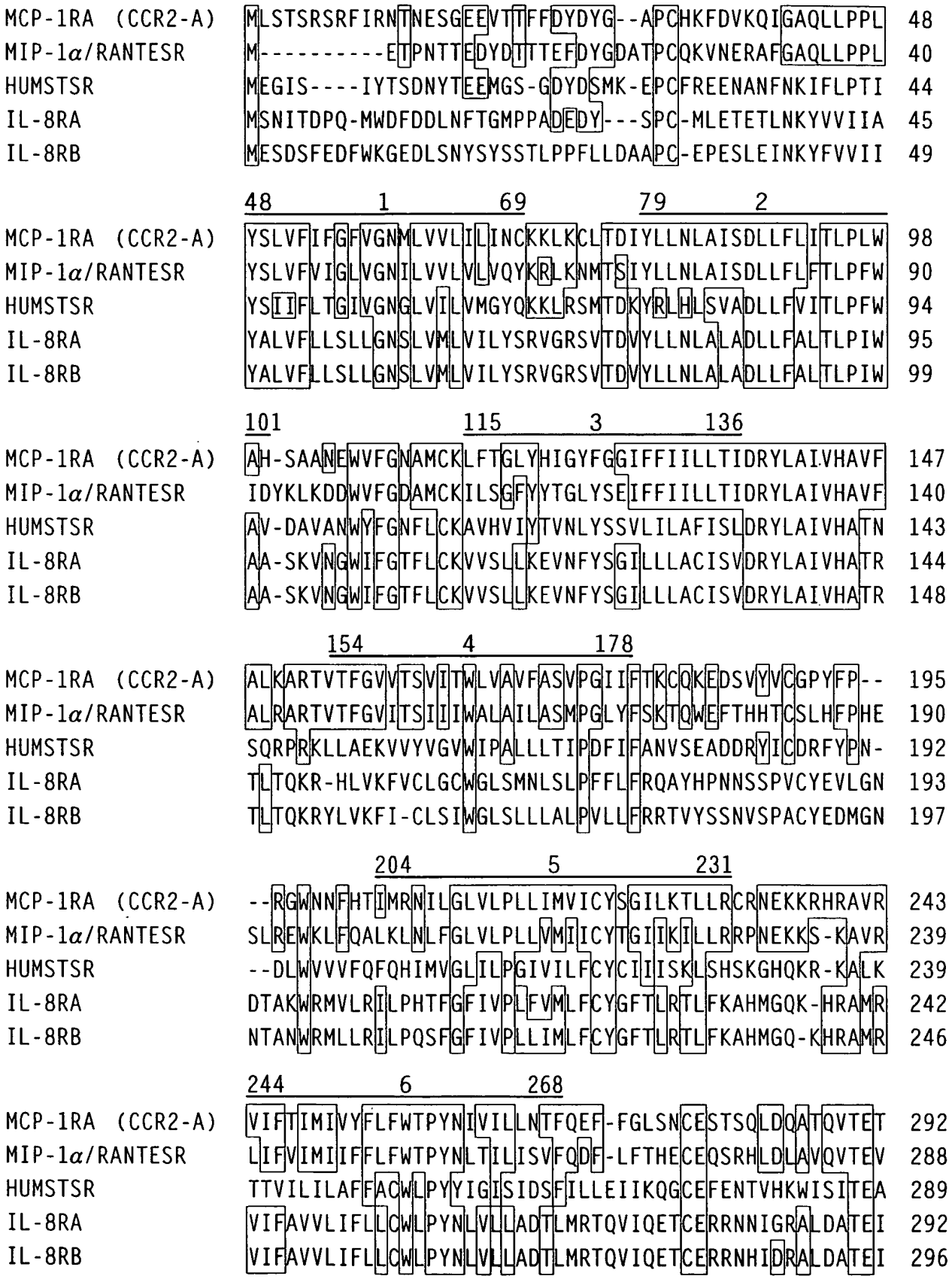

MCP-1RA (CCR2-A) MLSTSRSRFIRNTNESGEEVTTFFDYDYG--APCHKFDVKQIGAQLLPPL 48
MIP-1α/RANTESR M----------ETPNTTEDYDTTTEFDYGDATPCQKVNERAFGAQLLPPL 40
HUMSTSR MEGIS----IYTSDNYTEEMGS-GDYDSMK-EPCFREENANFNKIFLPTI 44
IL-8RA MSNITDPQ-MWDFDDLNFTGMPPADEDY---SPC-MLETETLNKYVVIIA 45
IL-8RB MESDSFEDFWKGEDLSNYSYSSTLPPFLLDAAPC-EPESLEINKYFVVII 49
48 1 69 79 2
MCP-1RA (CCR2-A) YSLVFIFGFVGNMLVVLILINCKKLKCLTDIYLLNLAISDLLFLITLPLW 98
MIP-1α/RANTESR YSLVFVIGLVGNILVVLVLVQYKRLKNMTSIYLLNLAISDLLFLFTLPFW 90
HUMSTSR YSIIFLTGIVGNGLVILVMGYQKKLRSMTDKYRLHLSVADLLFVITLPFW 94
IL-8RA YALVFLLSLLGNSLVMLVILYSRVGRSVTDVYLLNLALADLLFALTLPIW 95
IL-8RB YALVFLLSLLGNSLVMLVILYSRVGRSVTDVYLLNLALADLLFALTLPIW 99
101 115 3 136
MCP-1RA (CCR2-A) AH-SAANEWVFGNAMCKLFTGLYHIGYFGGIFFIILLTIDRYLAIVHAVF 147
MIP-1α/RANTESR IDYKLKDDWVFGDAMCKILSGFYYTGLYSEIFFIILLTIDRYLAIVHAVF 140
HUMSTSR AV-DAVANWYFGNFLCKAVHVIYTVNLYSSVLILAFISLDRYLAIVHATN 143
IL-8RA AA-SKVNGWIFGTFLCKVVSLLKEVNFYSGILLLACISVDRYLAIVHATR 144
IL-8RB AA-SKVNGWIFGTFLCKVVSLLKEVNFYSGILLLACISVDRYLAIVHATR 148
154 4 178
MCP-1RA (CCR2-A) ALKARTVTFGVVTSVITWLVAVFASVPGIIFTKCQKEDSVYVCGPYFP-- 195
MIP-1α/RANTESR ALRARTVTFGVITSIIIWALAILASMPGLYFSKTQWEFTHHTCSLHFPHE 190
HUMSTSR SQRPRKLLAEKVVYVGVWIPALLLTIPDFIFANVSEADDRYICDRFYPN- 192
IL-8RA TLTQKR-HLVKFVCLGCWGLSMNLSLPFFLFRQAYHPNNSSPVCYEVLGN 193
IL-8RB TLTQKRYLVKFI-CLSIWGLSLLLALPVLLFRRTVYSSNVSPACYEDMGN 197
204 5 231
MCP-1RA (CCR2-A) --RGWNNFHTIMRNILGLVLPLLIMVICYSGILKTLLRCRNEKKRHRAVR 243
MIP-1α/RANTESR SLREWKLFQALKLNLFGLVLPLLVMIICYTGIIKILLRRPNEKKS-KAVR 239
HUMSTSR --DLWVVVFQFQHIMVGLILPGIVILFCYCIIISKLSHSKGHQKR-KALK 239
IL-8RA DTAKWRMVLRILPHTFGFIVPLFVMLFCYGFTLRTLFKAHMGQK-HRAMR 242
IL-8RB NTANWRMLLRILPQSFGFIVPLLIMLFCYGFTLRTLFKAHMGQ-KHRAMR 246
244 6 268
MCP-1RA (CCR2-A) VIFTIMIVYFLFWTPYNIVILLNTFQEF-FGLSNCESTSQLDQATQVTET 292
MIP-1α/RANTESR LIFVIMIIFFLFWTPYNLTILISVFQDF-LFTHECEQSRHLDLAVQVTEV 288
HUMSTSR TTVILILAFFACWLPYYIGISIDSFILLEIIKQGCEFENTVHKWISITEA 289
IL-8RA VIFAVVLIFLLCWLPYNLVLLADTLMRTQVIQETCERRNNIGRALDATEI 292
IL-8RB VIFAVVLIFLLCWLPYNLVLLADTLMRTQVIQETCERRNHIDRALDATEI 296

FIG. 4(B)

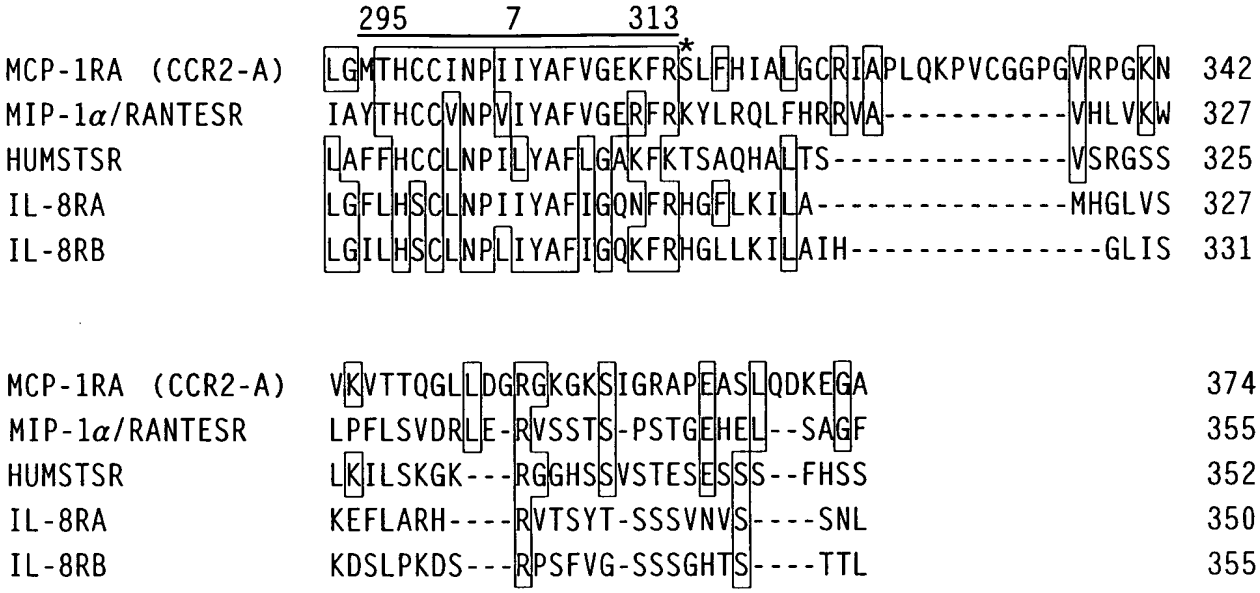

295
7
313
MCP-1RA (CCR2-A) LGMTHCCINPIIYAFVGEKFRSLFHIALGCRIAPLQKPVCGGPGVRPGKN 342
MIP-1α/RANTESR IAYTHCCVNPVIYAFVGERFRKYLRQLFHRRVA----------VHLVKW 327
HUMSTSR LAFFHCCLNPILYAFLGAKFKTSAQHALTS----------VSRGSS 325
IL-8RA LGFLHSCLNPIIYAFIGQNFRHGFLKILA----------MHGLVS 327
IL-8RB LGILHSCLNPLIYAFIGQKFRHGLLKILAIH----------GLIS 331
MCP-1RA (CCR2-A) VKVTTQGLLDGRGKGKSIGRAPEASLQDKEGA 374
MIP-1α/RANTESR LPFLSVDRLE-RVSSTS-PSTGEHEL--SAGF 355
HUMSTSR LKILSKGK---RGGHSSVSTESESSS--FHSS 352
IL-8RA KEFLARH----RVTSYT-SSSVNVS----SNL 350
IL-8RB KDSLPKDS---RPSFVG-SSSGHTS----TTL 355

FIG. 5

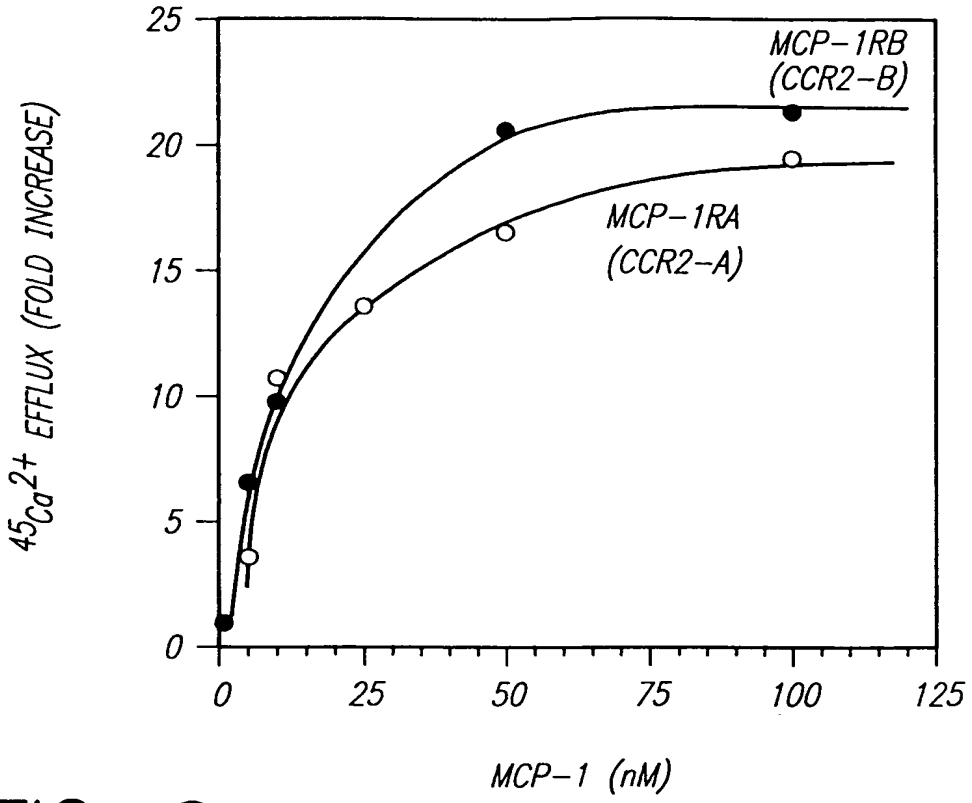

25
20
15
10
5
0
0
25
50
75
100
125
MCP-1RB
(CCR2-B)
MCP-1RA
(CCR2-A)
45Ca2+ EFFLUX (FOLD INCREASE)
MCP-1 (nM)

FIG. 6

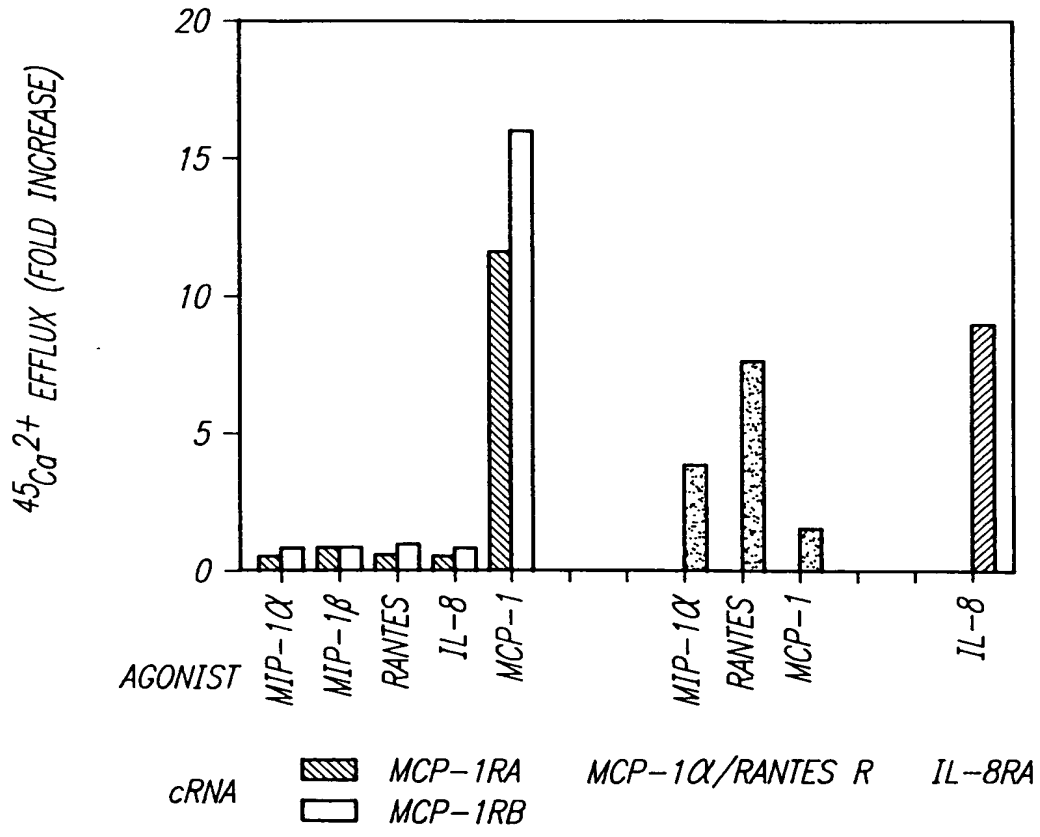

20
15
10
5
0
45Ca2+ EFFLUX (FOLD INCREASE)
AGONIST
MIP-1α
MIP-1β
RANTES
IL-8
MCP-1
MIP-1α
RANTES
MCP-1
IL-8
cRNA
MCP-1RA
MCP-1RB
MCP-1α/RANTES R
IL-8RA

FIG. 7A

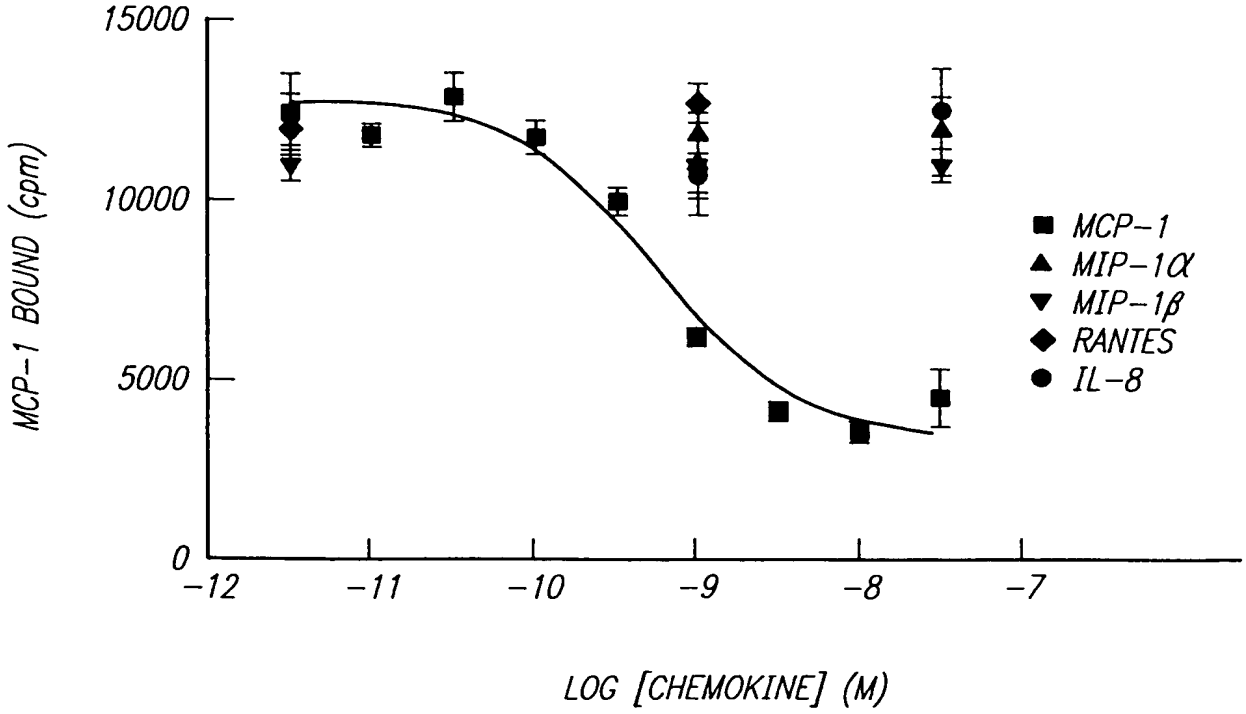

15000
10000
5000
0
MCP-1 BOUND (cpm)
-12
-11
-10
-9
-8
-7
LOG [CHEMOKINE] (M)
MCP-1
MIP-1α
MIP-1β
RANTES
IL-8

FIG. 7B

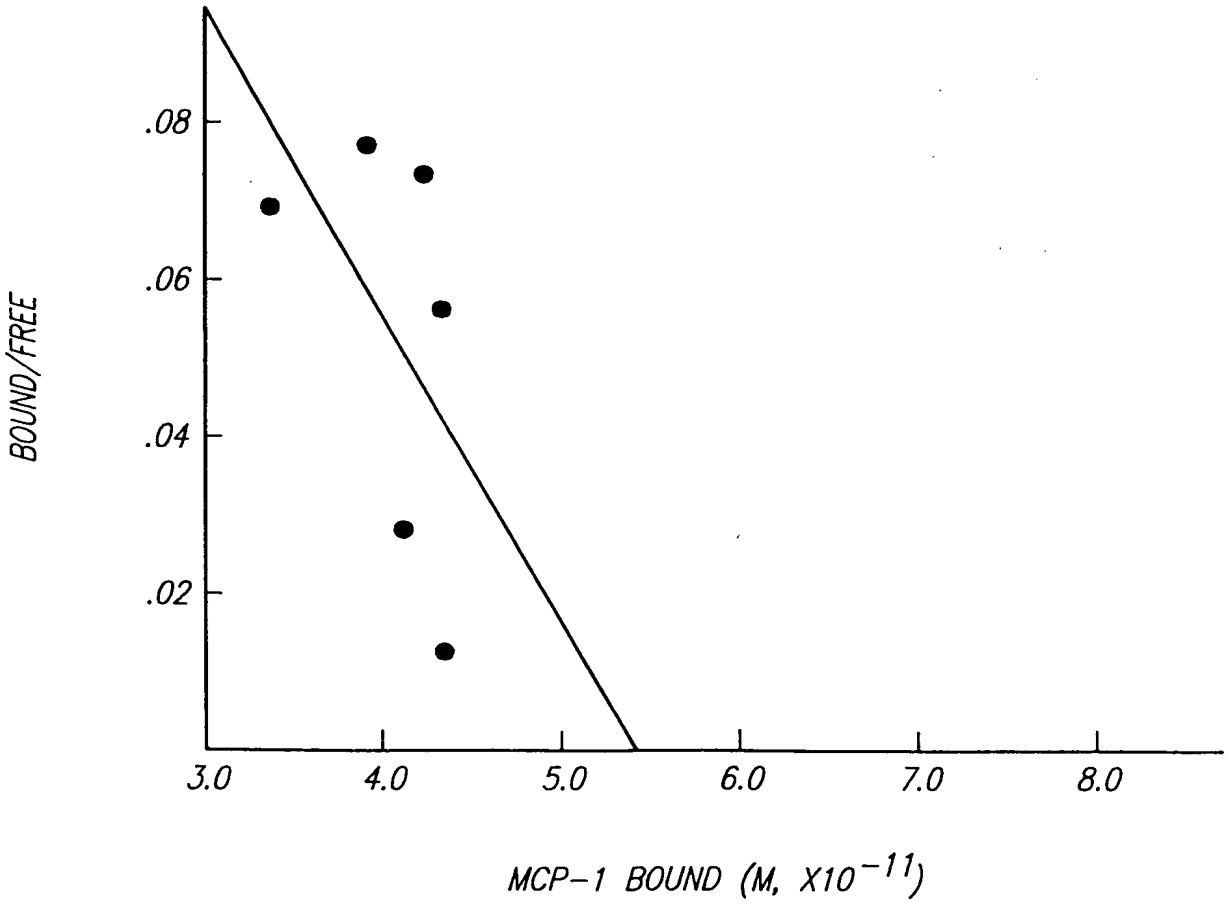

.08
.06
.04
.02
BOUND/FREE
3.0
4.0
5.0
6.0
7.0
8.0
MCP-1 BOUND (M, X10^{-11})

FIG. 8A

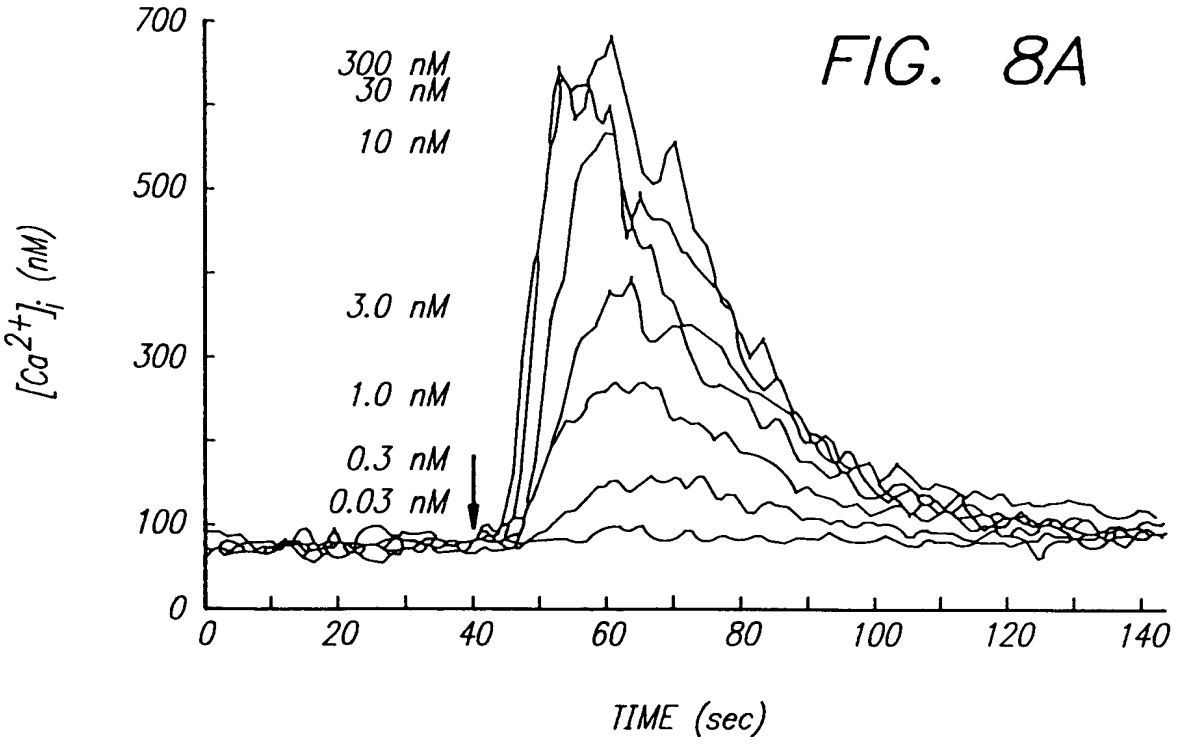
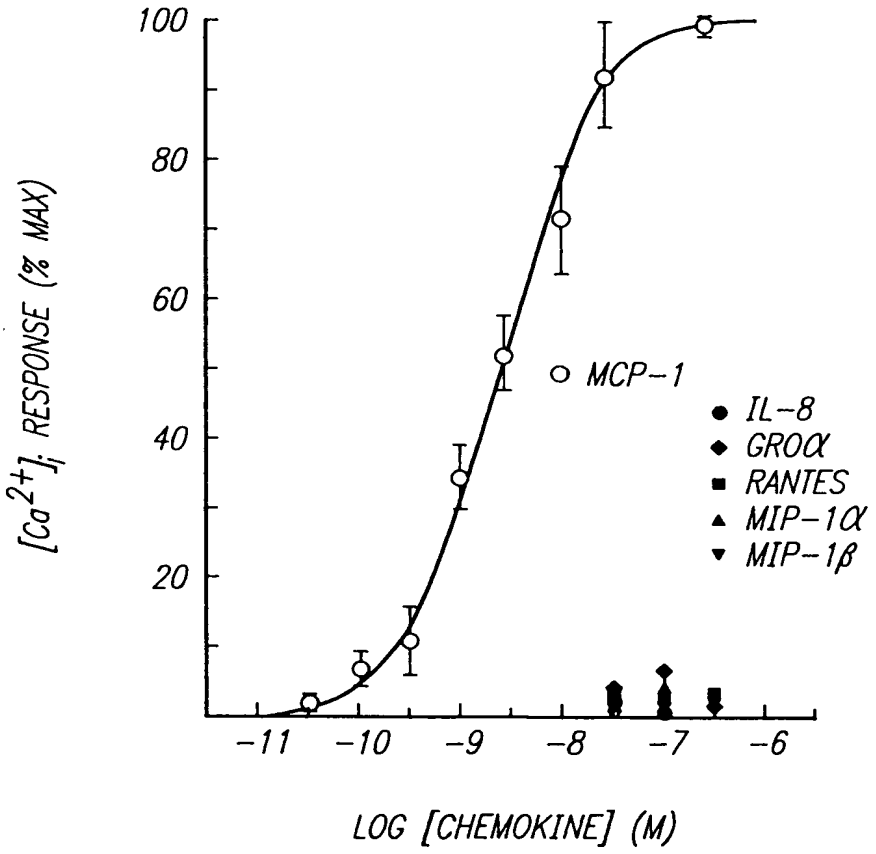

700
500
300
100
0
$[Ca^{2+}]_i$ (nM)
300 nM
30 nM
10 nM
3.0 nM
1.0 nM
0.3 nM
0.03 nM
0
20
40
60
80
100
120
140
TIME (sec)

FIG. 8B


100
80
60
40
20
$[Ca^{2+}]_i$ RESPONSE (% MAX)
MCP-1
IL-8
GROα
RANTES
MIP-1α
MIP-1β
−11
−10
−9
−8
−7
−6
LOG [CHEMOKINE] (M)

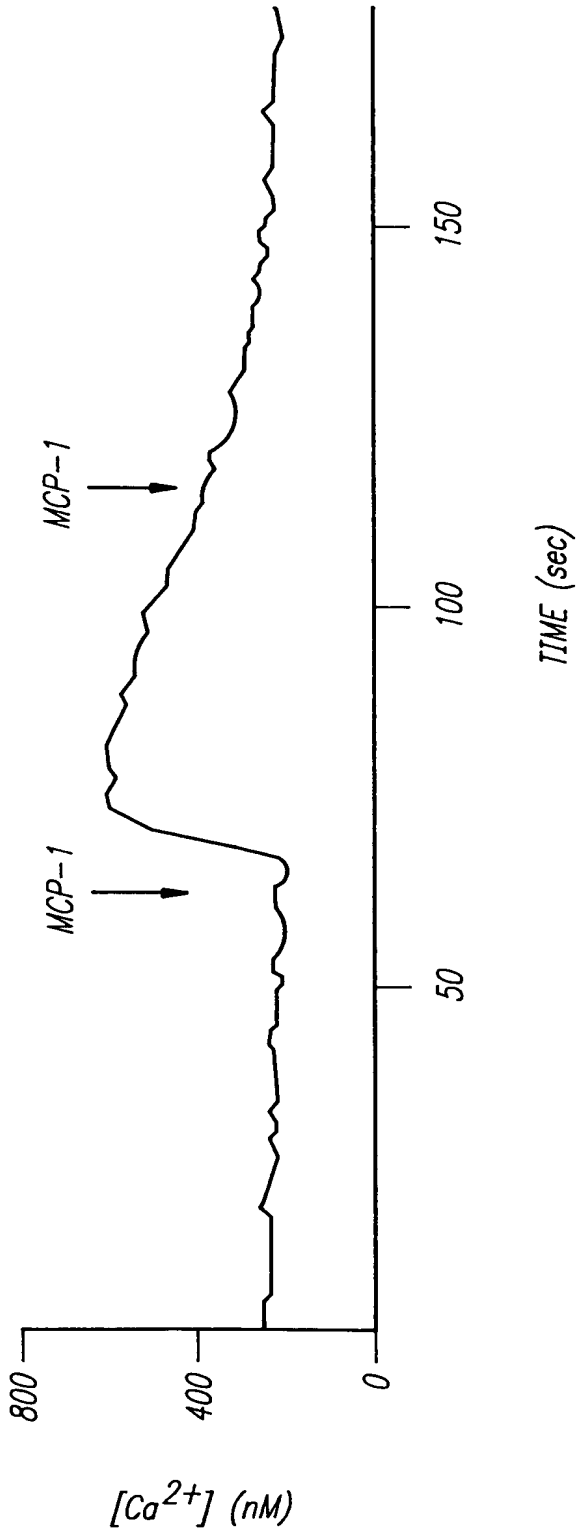



FIG. 8C